Canadian Labour Force Survey

Disruptions and Disasters

ASA Strategic Initiative
Workshop on Modifying Surveys in Response to Disruptions
Washington, D.C.
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Outline

- Labour Force Survey (LFS) Overview
- Types / Impacts of Disruptions and Disasters
- Dealing with Disruptions and Disasters
- Business Continuity Plan
- Disaster/Catastrophe Effects (DCE) Component
- Issues for Discussion

LFS Overview

- Monthly household survey conducted by Statistics Canada
- Source of the official estimate of unemployment
- Various detailed estimates of employment and unemployment
- Specific release date each month (normally the first Friday)

LFS Overview

- Probability sample based on stratified multi-stage design
- Six representative rotation groups
- Selected dwellings in sample for six consecutive months
- ≈ 53,000 households
- CATI (six sites) and CAPI interviewing using BLAISE applications
- 10-day collection period

Types of Disruptions and Disasters

- Interviewer strikes
- Public Service strikes
- Natural and man-made
  - hurricanes, tornados, earthquakes, floods
  - ice storms
  - power outages
  - implementation of technology changes (hardware and software)
- Impact of September 11 terrorist attacks

Impacts of Disruptions and Disasters

- Collection, transmission, coding, editing, imputation, weighting, analysis, dissemination processes
- Data quality (e.g., response rates, reliability)
- Timelines and schedules
- Survey estimates (e.g., absences, hours worked)

Dealing with Disruptions and Disasters

- Monitor collection progress by geographic areas
- Transfer cases between:
  - CAPI interviewers
  - CATI sites
  - CAPI and CATI
- Adjust regional office schedules/priorities
- Extend data collection

Dealing with Disruptions and Disasters

- Create hierarchy of sample files required to produce national, provincial, regional estimates
- Adjust imputation/weighting methods and thresholds
- Collect data from Head Office
- Change LFS release date ← **NO!**

Business Continuity Plan

- Statistics Canada initiative to identify key requirements, establish priorities and develop contingency plans for mission critical programs
- Provides essential information, processes and procedures to be used by staff to respond to any event affecting normal operations of the LFS in order to:
  - ensure the continued availability of the survey program
  - establish the roles and responsibilities of divisional staff during emergencies or crisis situations
  - identify critical assets and infrastructure
  - document recovery and business continuity options

Business Continuity Plan

- Specifies critical data outputs, and hierarchical geographic priority levels for employment and unemployment estimates
- Includes detailed scenarios, impacts, options, strategies, risks and considerations for different disruptions and disasters, according to various assumptions
- Identifies Household Survey Methods Division as a potential vital partner in addressing any specific situation
- Subject to regular review and updates
- Subject to occasional departmental testing of all mission critical programs (simulated disaster)

Disaster/Catastrophe Effects (DCE) Component

Background

- LFS can be used as a timely and efficient means to estimate the effects of exceptional events on labour productivity

- Existing questions on hours absent from work and the main reason for that absence (included under “Other – Specify”) have been used to estimate the effects of some exceptional events that occurred during the LFS reference week:
  - September 11 terrorist attacks
  - Power outage in August 2003

Limitations of Existing Questions

- Existing questions do not provide:
  1) a pure direct measure (i.e., hours lost are confounded with any other absences)
  2) information on any hours lost outside of LFS reference week
  3) information on any additional hours worked (i.e., there is no question that asks for the reason for overtime/extra hours)

Power Outage in August 2003

- Thursday, August 14
- Affected Ontario and northeast U.S.
- Effects of the power outage and subsequent conservation period lasted until the end of August
- Many persons lost hours of work, while many others worked additional hours
- August LFS provided some limited information of the power outage effects since August 14 was during the LFS reference week
- LFS developed a special supplementary paper questionnaire for the September survey in order to estimate the full effects of the power outage on actual hours of work for incorporation into GDP estimates

Power Outage in August 2003

- ☑ Results of September power outage supplementary survey were well-received
- ☒ Significant efforts were needed to manage a multi-mode environment, capture and match the data from the paper questionnaires, and process the data
- ☒ Given the cost and time constraints, the supplementary questions could only be asked in CATI (i.e., no CAPI)

Development of DCE Component

- LFS decided to develop a special “Disaster/Catastrophe Effects” (DCE) component that could be easily customized and enabled as needed
- Developed as a separate component within the LFS applications (CATI and CAPI)
- When needed:
  - a DCE control file contains specific disaster information used for question wording and edits
  - activation is controlled through a flag on the sample file dwelling-level record

Features of DCE Component

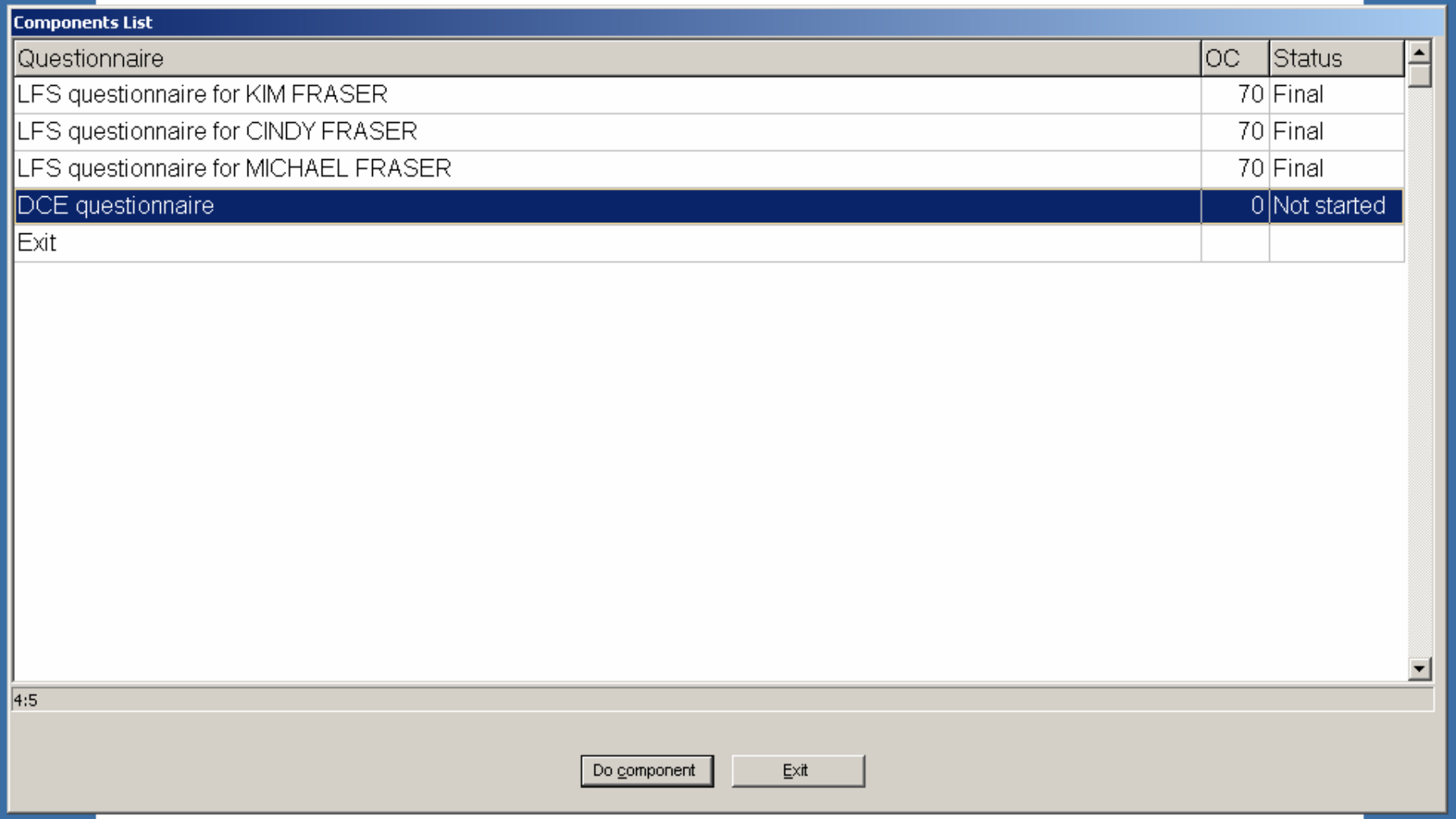
- Series of four questions (with hard/soft edits):
  - two questions related to hours lost:
    - Yes/No
    - If Yes, number of hours lost
  - two questions related to additional hours worked:
    - Yes/No
    - If Yes, number of additional hours worked

- All persons eligible for an LFS questionnaire are eligible for the DCE questions

  (i.e., all civilian non-institutionalized usual household members aged 15+)

Features of DCE Component

- Customized wording for all DCE questions that is dependant on the nature of the disaster and the corresponding reference period (information is contained in the DCE control file)
- Up to nine different disasters can be handled in any one month (one disaster per dwelling)
- DCE component is enabled on three training cases in the LFS CATI and CAPI applications (includes two different disasters)
- Generic DCE component training guide was developed


Components List
Questionnaire
OC
Status
LFS questionnaire for KIM FRASER
70
Final
LFS questionnaire for CINDY FRASER
70
Final
LFS questionnaire for MICHAEL FRASER
70
Final
DCE questionnaire
0
Not started
Exit
4:5
Do component
Exit

DCI_R01

This month I have a few extra questions regarding the work activities of the members of your household during the power outage and resulting conservation period that started on december 14. Many people lost work time during the second half of December. As well, some people had to work overtime.

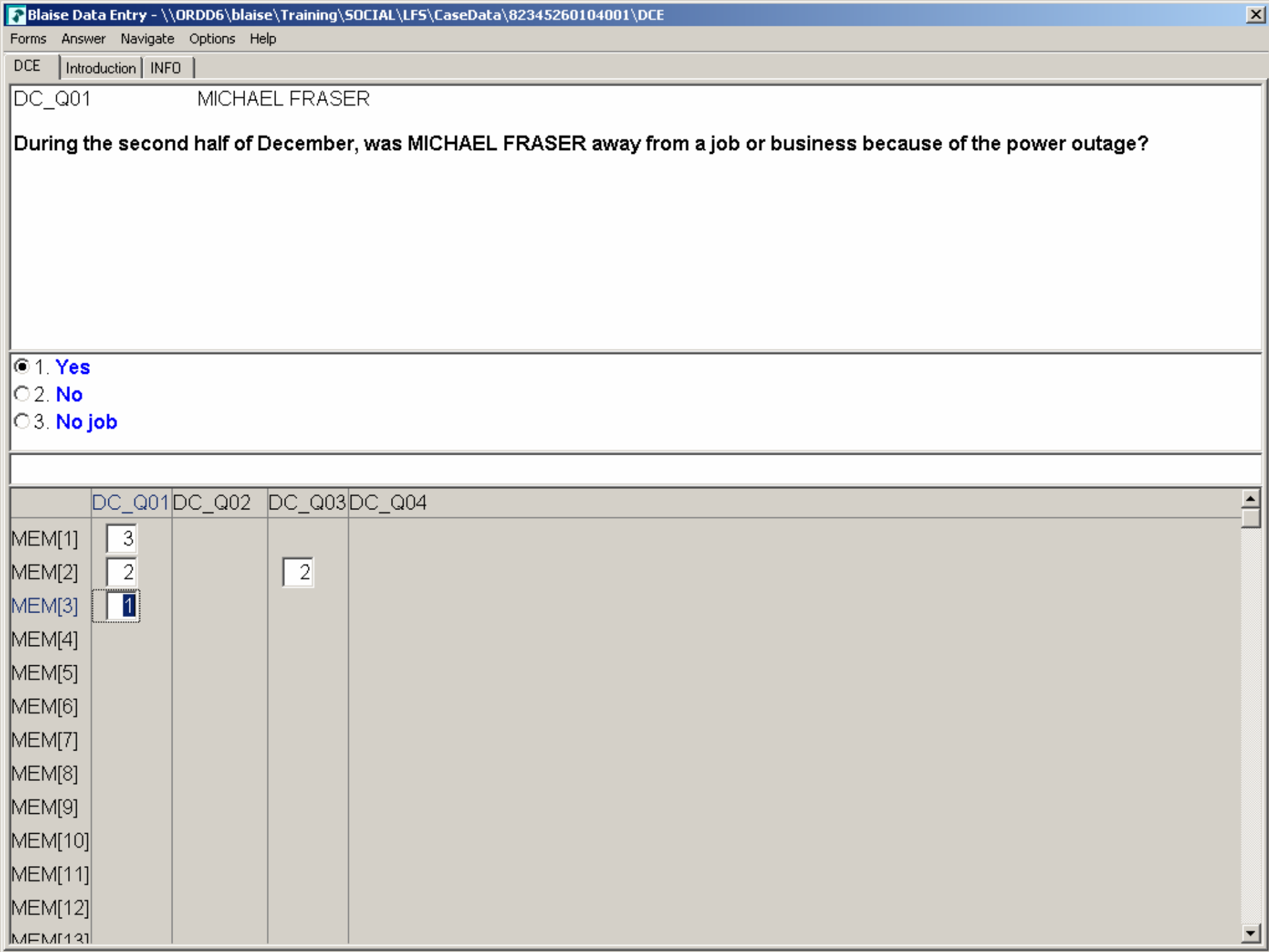
INTERVIEWER: Select the appropriate response.

(•) 1. **Complete the Disaster/Catastrophe questionnaire**

( ) 2. **Refused - Specify**

DCI_R01	1	Complete the Disaster/Catastrophe questionnaire

DCR_S01


Blaise Data Entry - \\ORDD6\blaise\Training\SOCIAL\LFS\CaseData\82345260104001\DCE
Forms Answer Navigate Options Help
DCE Introduction INFO
DC_Q01 MICHAEL FRASER
During the second half of December, was MICHAEL FRASER away from a job or business because of the power outage?
1. Yes
2. No
3. No job
DC_Q01 DC_Q02 DC_Q03 DC_Q04
MEM[1] 3
MEM[2] 2 2
MEM[3] 1
MEM[4]
MEM[5]
MEM[6]
MEM[7]
MEM[8]
MEM[9]
MEM[10]
MEM[11]
MEM[12]

Blaise Data Entry - \\ORDD6\blaise\Training\SOCIAL\LFS\CaseData\82345260104001\DCE

Forms Answer Navigate Options Help

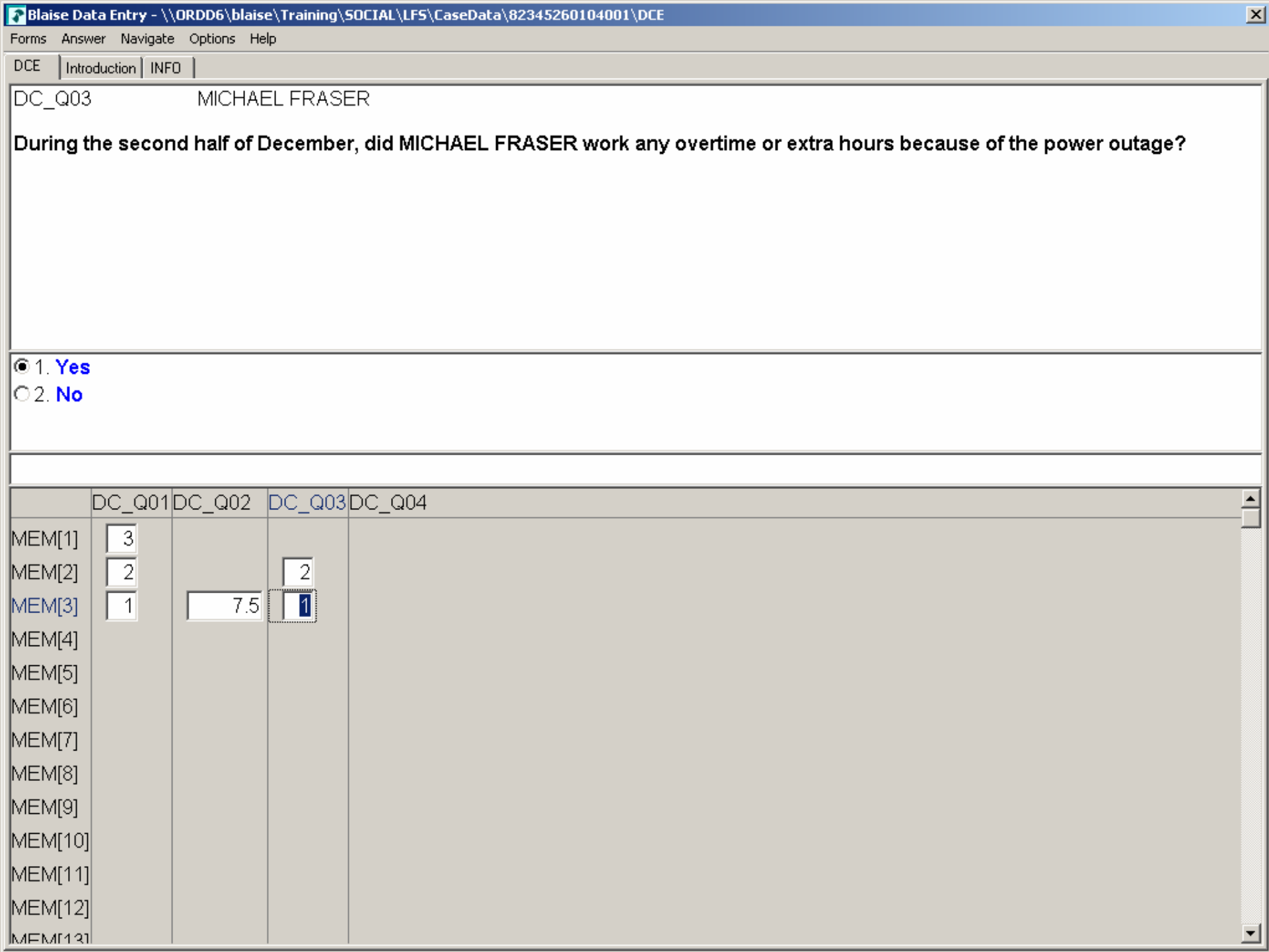
DCE | Introduction | INFO

DC_Q02 MICHAEL FRASER

How many hours was MICHAEL FRASER away from any job(s) or business(es) as a result of the power outage?

Enter a numeric value between 0.1 and 840.0

	DC_Q01	DC_Q02	DC_Q03	DC_Q04
MEM[1]	3			
MEM[2]	2		2	
MEM[3]	1	7.5		
MEM[4]				
MEM[5]				
MEM[6]				
MEM[7]				
MEM[8]				
MEM[9]				
MEM[10]				
MEM[11]				
MEM[12]				
MEM[13]				


Blaise Data Entry - \\ORDD6\blaise\Training\SOCIAL\LFS\CaseData\82345260104001\DCE
Forms Answer Navigate Options Help
DCE Introduction INFO
DC_Q03 MICHAEL FRASER
During the second half of December, did MICHAEL FRASER work any overtime or extra hours because of the power outage?
1. Yes
2. No
DC_Q01 DC_Q02 DC_Q03 DC_Q04
MEM[1] 3
MEM[2] 2 2
MEM[3] 1 7.5 1
MEM[4]
MEM[5]
MEM[6]
MEM[7]
MEM[8]
MEM[9]
MEM[10]
MEM[11]
MEM[12]

Blaise Data Entry - \\ORDD6\blaise\Training\SOCIAL\LFS\CaseData\82345260104001\DCE

Forms Answer Navigate Options Help

DCE | Introduction | INFO

DC_Q04 MICHAEL FRASER

How many hours of overtime or extra hours did MICHAEL FRASER work at any job(s) or business(es) as a result of the power outage?

Enter a numeric value between 0.1 and 840.0

	DC_Q01	DC_Q02	DC_Q03	DC_Q04
MEM[1]	3			
MEM[2]	2		2	
MEM[3]	1	7.5	1	4
MEM[4]				
MEM[5]				
MEM[6]				
MEM[7]				
MEM[8]				
MEM[9]				
MEM[10]				
MEM[11]				
MEM[12]				
MEM[13]				

Benefits of DCE Component

- Ease of activation
  - flexibility of customizing question wording and targeting of affected geographic areas
  - existence of infrastructure for collection application and data transmission / receipt
- Minimal testing required
- Minimal risk to survey

Limitations of DCE Component

- Current DCE questions limited to effects on hours worked
- Current DCE infrastructure means that:
  - decision to activate must be made at time of regular sample file creation (i.e., two weeks before start of data collection)
  - cannot activate in time to measure effects of disasters that occur during current month reference week

Potential Modifications to DCE Component

- Include other blocks of questions consisting of:

a) simple individual generic questions
   - Yes/No, Multiple Choice, Numeric Entry, Date Entry, Text Entry, etc.
   - flows and logic would be determined by flags and other information specified in DCE control file

b) pre-determined complex flows and logic
   - question wording would still be customized

Potential Modifications to DCE Component

- Re-design DCE infrastructure to change how the DCE component is activated, so that it is not sample file dependent, and could be activated more immediately

- However:
  - Disasters can occur at anytime, for any possible duration
  - Interest is usually in the full effect of the disaster
  - Classification of labour force status is most likely robust against disasters occurring in reference week
  - Priority is always to conduct core survey now and collect supplementary information later
  - Huge increase in potential risk to survey if incomplete testing

===> Data collection in the following month is likely sufficient

Issues for Discussion

- What types of disruptions or disasters are there that could conceivably impact on the main estimates from the survey (e.g., the classification of labour force status)?
- Is there a recognized need to be able to implement disaster questions immediately, so that they refer to the consequences of events during the current month reference week?
  - Should the Labour Force component itself incorporate actual disaster questions that could be activated more immediately?
  - Should the infrastructure of the existing DCE component be reviewed to permit the DCE component to be activated more immediately?

Issues for Discussion

- What other types of information (other than hours worked) could be of interest to collect using the DCE component?
- How much more flexibility (and thereby complexity) should be built into the DCE component?
- What should be the rules and procedures (governance structure) for deciding when to activate the DCE component?
- What are the training implications for field staff implementing new questions on short notice?
- What are the design, development, and testing implications of flexible, quick-response survey modules?